IN THE CLAIMS:

Claims 1-2 (Canceled)

3. (Currently Amended) A method for recognizing speech by determining the likelihood of observing a feature vector o_t of a speech signal employing time and frequency Signal-to-Noise Ratio (SNR) ~~SNR~~ dependent weighting, said method comprising the steps of:

receiving a speech signal;

for each time period t of the speech signal, estimating the SNR to get time and frequency SNR information $\eta_{t,f}$;

calculating the time and frequency weighting to get weighting coefficient γ_{tf}, wherein γ_{tf} is a function of $\eta_{t,f}$;

using an inverse Discrete Cosine Transform (DCT) ~~DCT~~ matrix M^{-1} to transform a cepstral distance $(o_t-\mu)$ associated with the speech time period t to a spectral distance;

computing a weighted spectral distance by applying time and frequency weighting to the spectral distance employing a time-varying diagonal matrix G_t which represents the weighting coefficient γ_{tf};

transforming the weighted spectral distance to a weighted cepstral distance employing a forward DCT matrix M; ~~to get a transformation matrix T_t and~~

calculating a likelihood of observing the feature vector o_t by employing the weighted cepstral distance in a ~~providing the transformation matrix T_t and the feature vector o_t, which is unmodified, to a~~ probability function $b_j(o_t)$; and

performing speech recognition of the speech signal employing the probability function $b_j(o_t)$ that is both time and frequency weighted.

4. (Previously Presented) The method of claim 3 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a pronunciation probability estimation.

5. (Previously Presented) The method of claim 3 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a transmission over a noisy communication channel reliability estimation.

6. (Original) The method of claim 3 wherein

$$\gamma_{t,f} = \frac{\sqrt{\eta_{t,f}}}{1+\sqrt{\eta_{t,f}}},$$

which guarantees that γ_{tf} is equal to 0 when $\eta_{t,f}=0$ and $\gamma_{t,f}$ approaches 1 when $\eta_{t,f}$ is large.

7. (Currently Amended) A method for <u>recognizing speech by</u> determining the likelihood of observing a feature vector o_t <u>of a speech signal</u> employing time and frequency <u>Signal-to-Noise Ratio (SNR)</u> ~~SNR~~ dependent weighting<u>, said method</u> comprising the steps of:

<u>receiving a speech signal;</u>

for each speech frame t <u>of the speech signal</u>, estimating SNR to get time and frequency SNR information $\eta_{t,f}$;

calculating the time and frequency weighting to get weighting coefficient γ_{tf}, wherein γ_{tf} is a function of $\eta_{t,f}$;

transforming a cepstral distance $(o_t-\mu)$ associated with the speech frame t to a spectral distance;

computing a weighted spectral distance by applying time and frequency weighting to the spectral distance employing a time-varying diagonal matrix that represents the weighting coefficient γ_{tf};

transforming the weighted spectral distance to a weighted cepstral distance ~~to get a transformation matrix T_t~~; ~~and~~

calculating a likelihood of observing the feature vector o_t by employing the weighted cepstral distance in a ~~providing the transformation matrix T_t and the feature vector o_t, which is unmodified, to a~~ probability function $b_j(o_t)$; and

performing speech recognition of the speech signal employing the probability function $b_j(o_t)$ that is both time and frequency weighted.

8. (Previously Presented) The method of claim 7 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a pronunciation probability estimation.

9. (Previously Presented) The method of claim 7 wherein the estimating the SNR to get time and frequency SNR information $\eta_{t,f}$ is a transmission over a noisy communication channel reliability estimation.

10. (Currently Amended) A method of determining a likelihood of observing a feature vector o_t in a speech model ~~recognition~~, comprising:

receiving a speech signal;

estimating a Signal-to-Noise Ratio (SNR) ~~SNR~~ for each unit t of a feature vector o_t of said speech signal to obtain time and frequency SNR information;

determining a transformation matrix T_t based on said time and frequency SNR information;

weighting a combination of said feature vector o_t and a speech model parameter μ by said transformation matrix T_t to obtain a weighted cepstral distance $T_t(o_t-\mu)$;

and

employing said weighted cepstral distance $T_t(o_t-\mu)$ that is both time and frequency weighted

in a probability function $b_j(o_t)$ to determine a likelihood of observing said feature vector o_t.

11. (Previously Presented) The method of Claim 10 wherein said unit t represents a frame t of said feature vector o_t.

12. (Previously Presented) The method of Claim 10 wherein said unit t represents a time period t of said feature vector o_t.

13. (New) The method of Claim 3 wherein the performing speech recognition includes employing a Viterbi algorithm.

14. (New) The method of Claim 7 wherein the performing speech recognition includes employing a Viterbi algorithm.